# Gathering of Requirements

The gathering of requirements is done by e-mail (dated 06/04/2024 17:44, see “*360T - Your Job Application \_ Invite to the e-Assessment.eml*”).



The email contains the instructions for implementing the attached task and give an impression about the coding style and the level of expertise. The attached files are:

1. “*Data Engineer Assignment.pdf*” with the explanation of the assignment that should be done and the requirements of another optional assignment.



1. “*rates\_sample.csv*” an example of CSV containing a sample of events that needs to be analysed



# Analysis of Requirements

In the analysis of requirements phase, we determine the needs and expectation of a new Datawarehouse (DWH) product called “*ForeignExchangeRateDWH*”. The purpose of the analysis is to define expectations, resolve conflicts, document all the key requirements; it involves frequent communication with the stakeholders.

Stakeholder Identification

The project is composed by the following stakeholders:

* **360T**: 360T is a company founded in 2000 and it provides a range of FX trading solutions. Today 360T is uniquely positioned to help connect the global FX industry via proprietary suite of web-based technology solutions.

As the Deutsche Börse Group’s global FX unit, 360T offer a full range of streamlined services across the entire trading workflow of FX and Short-Term Money Market products, enabling firms to transact in a more transparent and efficient manner, whilst also reducing operational and regulatory risk. It is the company that provides the requirements.

* **Andrei Szabo**: He’s a Development Team Lead at 360T. The stakeholder is the main interface between the provider of the service and 360T.
* **Rocco Caliandro**: Rocco is a Data Engineer that works for build the ForeignExchangeRateDWH datawarehouse

Requirements

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| REQUIREMENT ID | REQUREMENT NAME | REQUIRED | DESCRIPTION |
| REQ\_001 | DisplayRate | True | Display for each currency pair the FX exchange rate |
| REQ\_002 | DisplayChangePercentage | True | Display for each currency pair the percentage of the change compared to yesterday’s rate at 5PM New York Time |
| REQ\_003 | HighFrequency | True | Rates are received in high frequency, milliseconds |
| REQ\_004 | OutputFormat | True | The output must have the following format: |
| REQ\_005 | JobSchedule | True | Schedule a job which runs every 1 hour and have the possibility to change the schedule to run every 1 minute instead |
| REQ\_006 | ActiveRates | True | The job should consider only “*active*” rates. What “*active”* means will be specified in the business logic during the design phase (for currency pairs that don’t have an “*active”* rate, no output should be produced) |
| REQ\_007 | GenericSolution | True | In the example file there are 5 currency pairs but the job should work also if we assume 300 currency couples (or even more) |
| REQ\_008 | RealTimeStreaming | False | It’s an optional requirement. Instead of a batch, we would like to change the process into a streaming one and display data in real time |

Dictionary

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| TERM\_ID | TERM | DESCRIPTION |
| TERM\_001 | ForeignExchangeRateDWH | This is the chosen name of the Datawarehouse and the project name |
| TERM\_002 | Stakeholder | Person, group or organization with a vested interest or stake, in the activities of the current project |
| TERM\_003 | 360T | Company founded in 2000 that provides a range of FX trading solutions. It is one of the stakeholders |
| TERM\_004 | FX | Stand for Foreign Exchange |
| TERM\_005 | Currency Pair | It defines a pair of currencies using 3 letters for each currency (ISO Standard). For example, the pair USDEUR is composed by USD and EUR |
| TERM\_006 | Streaming | Streaming means that data is continuously generated. Such data should be processed by using stream processing techniques. It is usually used in the context of big data in which it is generated by many different sources at high speed |
| TERM\_007 | RealTime | Relating to a system in which input data is processed within milliseconds so that it is available virtually immediately as feedback to the process from which it is coming |
| TERM\_008 | DWH | It is the abbreviation of “Datawarehouse” |
| TERM\_009 | Base Currency | In a currency pair, for example EURUSD, the first three letters represent the so called “*Base Currency*”. In this case the Base Currency is EUR. |
| TERM\_010 | Quote Currency | In a currency pair, for example EURUSD, the latest three letters represent the so called “*Quote Currency*”. In this case the Quote Currency is USD. |